The Mountain Ungulates of the Greater and Trans - Himalaya: An Introduction

- Editors

Mountains are widely acknowledged as the 'water towers' of the world in addition to being rich repositories of, often, unique biodiversity. Recognizing these values of the mountains, the UN had declared the year 2002 as the 'International Year of the Mountains' to generate awareness about the conservation and sustainable development of the mountains.

The Himalaya are the most prominent mountains in India and the region covers *ca.* 12% of the country's 3.3 million km^2 geographical area. The present issue is dedicated to a fascinating, yet little known part of its fauna – the mountain ungulates inhabiting the cold, rugged mountains of the higher Himalaya – the *ridaks* or the Mountain Monarchs, as some mountain people call them.

In this chapter, we give a brief overview of the Himalayan region, its wildlife values and the reasons for choosing the present theme for the Bulletin.

The Himalaya and Associated Mountains

The Himalaya are the youngest of world's mountain chains and have among the highest peaks in the world. These mountains form the watershed for most of the rivers flowing in northern India, which sustain millions of humans who inhabit the Indo-Gangetic plains. The high ranges of the Himalaya stop the northward flow of the monsoon clouds and thus responsible for the climate and prosperity of the people living in the northern region of the Indian subcontinent.

The Himalaya trace an arc of over 2,500km, from the Nanga Parbat in the west, to the Namche Barwa in the east in a roughly NW-SE orientation. In Jammu & Kashmir, the mountains and valleys of the Pamirs and the Hindu Kush spread further west, the Karakorum, east and the Kunlun mountains towards the NE, this forming one of the most formidable mountain complexes of the world. Further north, the Altai and Tien Shan ranges lead into the heart of Cenral Asia. There are a range of low mountains further that emerge from the western fringes in Pakistan, and align in a NE-SW orientation towards the deserts of Baluchistan as the Salt and the Kirthar ranges. In the east, the mountains take a sharp southward turn from Namche Barwa into the mountains of Myanmar and Bangladesh, moving further into south east Asia. The Himalaya, are thus a part of the largest mountain complex of the world and bridges its major realms, the oriental in the east and south, the Palarctic along the north and the Ethiopian along the west.

The vast spread of the Himalaya has a width varying from 200km in parts to over 500km in others. This expanse has a great variation in topography as well as biodiversity along the south to north, and the east to west axis. Humidity in general declines from east to west and from south to north, along the Himalaya.

The foothills, or the Siwalik mountains are uplifted glacial debris, at places extending to *ca.* 1,000m above mean sea level. Higher on are the 'Middle Himalaya' extending up to *ca.* 3,000m as undulating hills, at places cut steeply by flowing torrents and rivers. Beyond the Middle Himalaya, is the towering Greater Himalayan range consisting primarily of igneous formations with patches of sedimentary rocks. Bulk of this area is covered with huge glaciers and peaks, with relatively arid, cold valleys in their fold. Across this great barrier, is the vast arid expanse of the Tibetan Marginal Mountains and the Tibetan Plateau, often referred to as the Trans-Himalaya. The Trans Himalaya are categorized as the Zone 1 (with two provinces) as per the biogeographically classification by Rodgers & Panwar (1988) and roughly covers 5.6% of the country's geographical area. The rest of the

Himalaya are categorized as the Zone 2 (with four provinces) and covers roughly 6.4% of the country.

More interesting facts about the Himalaya such as the orogeny of the Himalaya, ecological zonation, and flora and fauna can be found in Schaller (1977) and Polunin & Stainton (1992), apart from numerous other publications.

The Mountain Ungulates of the Himalaya and Trans-Himalaya

The ungulate fauna of the Himalaya include species such as the chital, sambar, wild pig, Asian elephant, species that are found in other parts of the country too. There are however various cervids, moschids, bovids and equuids unique to the Himalaya or limited to the high mountain chains of Central Asia. Most of these species evolved to inhabit the niches produced by spectacular mountain building during the Cretaceous and Tertiary that created new, usually cold and bleak landscapes, and are well adapted to these harsh environments. This little known fauna comprising of 15 species/subspecies have been selected for the present ENVIS Bulletin (Table 1). The taxonomy of this group of animals is greatly debated and we have mostly limited our listing to classification by Schaller (1977), Schaller (1998) or Shackleton (1997). We have not included the Wild Goat (*Capra aegagrus*) and the *Shou* or Sikkim stag (*Cervus elaphus wallichi*), since its occurrence in the country are not confirmed.

It is noteworthy that this assemblage of species/ subspecies constitutes *ca.* 50% of India's ungulate fauna. Many of these species are wild relatives of sheep, goat, horse/donkey and yak, thus adding value to this assemblage as an important genetic pool.

The ungulates of the high mountains are prey to charismatic predators such as the snow leopard, Tibetan wolf and common leopard. An understanding of their ecology can thus help in better management of the entire region.

Most of WII's ENVIS Bulletins so far have been taxa based (elephants, small cats, crocodilians, non-human primates) or on the PA network in the country. The issues on taxa usually provide exhaustive articles from experts with either a species or a regional focus. As alluded to earlier, in this volume we have confined ourselves to the Himalayan region among all the mountain chains in the country due to its unique value as the highest, significant ecological entity, grand and fragile, yet harbouring some of the most pristine habitats for wildlife left in the country. Within the Himalaya, we have chosen accounts on those ungulate species that are either unique to the Himalaya or are confined to the mountain ranges alone.

Layout of the Issue

The issue is divided into five Sections in order to cover various facets of mountain ungulates and their conservation. Section One gives species accounts of the fifteen species/subspecies present in the country. The two chapters in this section give brief accounts of the species in the Himalayan and the Trans-Himalayan regions in a 'field guide' format. This, we believe, should be useful for the lay user as well as the serious reader to easily acquaint with the species, its distribution, status, habitat, behavioural traits, morphology and key biological facts. We have tried to give clear photographs of all species, but where not available, we have given sketches.

There is a wealth of information available with the State Forest/Wildlife Departments on animal distribution and status, their vision for wildlife conservation, and management actions being taken. Often, these efforts are little known and appreciated. The Section Two on ' Protected Area Network and State Reports on Status and Management of Mountain Ungulates' is meant to bridge this gap to some extent. The Himalaya are spread over six Indian states. We were able to receive articles from five of them which are presented in this section.

The fragile Himalayan region is faced with numerous conservation issues. Some of them such as livestock grazing in Protected Areas and human-wildlife conflicts are common with the rest of the country, but there are unique socio-economic peculiarities that make dealing with

them more challenging. These issues and possible solutions for them are detailed for the Himalayan and the Trans-Himalayan regions in Section Three of this Bulletin.

The Himalaya have fascinated naturalists since time immemorial. A few decades ago however some scientists and naturalists have painstakingly documented the region's wildlife, often under very harsh conditions and with few facilities. We have tried to bring this perspective on what was their driving force, their trials and tribulations in initiating these studies, in Section Four – 'Semi-Scientific Accounts by Veterans on Research and Conservation Experiences on Mountain Ungulates'.

Although there have been few quantitative studies and assessments on the mountain ungulates in the Himalaya, there is a wealth of information as anecdotal accounts that reveal a lot about the species. We have developed and included an exhaustive bibliography on the useful references for mountain ungulates and about conservation of the region in general as the last section of this volume.

The Wildlife Institute of India has pioneered research on wildlife in the Himalayan region since its inception, the very first research project being an extensive survey on the snow leopard and its prey species in the Western Himalaya. Through the twenty years of its existence, WII researchers and scientists have worked hard under daunting conditions to conduct over 30 critical studies and 20 surveys documenting the varied facets of the region's biodiversity and conservation issues. Through this Bulletin we wish to add an important and useful compilation on the conservation of the magnificent mountains crowning the country.

References

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Table 1: Mountain ungulate species covered in this volume along with information on the primary region where they occur.

S. No	Species	Scientific name	Primary region
	Order - Artiodactyla		
	Family – Bovidae		
	Subfamily – Caprinae		
	Tribe - Rupicaprini		
1	Grey Goral (also Red Goral)	*Nemorhaedus goral goral (Nemorhaedus baileyi)*	H
2	Mainland Serow	*Nemorhaedus sumatraensis*	H
	Tribe - Ovibovini		
3	Mishmi Takin	*Budorcas taxicolor taxicolor*	H
	Tribe - Caprini		
4	Himalayan tahr	*Hemitragus jemlahicus*	H
5	Himalayan Ibex	*Capra sibirica*	TH
6	Flare horned (Kashmir) Markhor	*Capra falconeri falconeri*	TH/H
7	Blue sheep or Bharal	*Pseudois nayaur*	TH/H
8	Ladakh Urial	*Ovis vignei vignei*	TH
9	Tibetan Argali	*Ovis ammon hodgsoni*	TH
	Tribe - Saigini		
10	Chiru/Tibetan antelope	*Pantholops hodgsoni*	TH
	Tribe - Bovini		
11	Wild Yak	*Bos grunniens*	TH
	Subfamily - Antilopinae		
	Tribe - Antilopini		
12	Tibetan Gazelle	*Procapra picticaudata*	TH
	Family - Mochidae		
13	Himalayan Musk Deer	*Moschus chrysogaster*	H
	Family - Cervidae		
14	Hangul or Kashmir Stag (also *Shou* or Sikkim Stag)	*Cervus elephas hanglu* (*C. e. wallichi*)	H
	Order - Perissodactyla		
	Family - Equuidae		
15	Tibetan wild ass	*Equus kiang*	TH

Himalaya (H) or Trans Himalaya (TH))